

What is claimed is:

1. A contact lens, comprising:

a posterior surface; and
an opposite anterior surface including a vertical meridian, a horizontal meridian, a central optical zone, a blending zone extending outwardly from the central optical zone, a peripheral zone surrounding the blending zone, and an edge zone circumscribing and tangent to the peripheral zone,
wherein the blending zone has a surface which ensures that the peripheral zone, the blending zone and the central optical zone are tangent to each other,
wherein the peripheral zone has a surface that, in combination with the posterior surface, provides in the peripheral zone of the lens a thickness profile which is characterized (1) by having a lens thickness which increases progressively from the top of the lens downwardly along each of the vertical meridian and lines parallel to the vertical meridian until reaching a maximum value at a position between the optical zone and the edge zone and then decreases to the edge of the edge zone, or (2) by having a mirror symmetry with respect to a plane cutting through the vertical meridian, by having a substantially constant thickness in a region around the horizontal meridian and by having a thickness which decreases progressively from the horizontal meridian to the top or bottom of the contact lens along each of the vertical meridian and lines parallel to the vertical meridian.
2. A contact lens of claim 1, wherein the area of the peripheral zones is equal to or larger than the area of the central optical zone.
3. A contact lens of claim 1, wherein the thickness profile is characterized by having a lens thickness which increases progressively from the top of the lens downwardly along each of the vertical meridian and lines parallel to the vertical meridian until reaching a maximum value at a position between the optical zone and the edge zone and then decreases to the edge of the edge zone.
4. A contact lens of claim 3, wherein the lens thickness profile has a mirror symmetry with respect to a plane cutting through the vertical meridian.
5. A contact lens of claim 3, wherein the anterior surface has a series of isolines running from one side to the other side of the lens, wherein the lens thickness in the peripheral zone remains substantially constant along each of the series of isolines.

6. A contact lens of claim 5, wherein one of the isolines is a straight line coincidental with the horizontal meridian and the rest isolines are arcs, wherein each of arcs above the horizontal meridian is different from each other and mimics one arc of the edge of the upper eyelid of an eye at an eye-opening position, whereas each of arcs below the horizontal meridian is different from each other and mimics one arc of the edge of the lower eyelid of the eye at an eye-opening position.
7. A contact lens of claim 3, wherein the peripheral zone comprises a ridge feature disposed below the central optical zone, wherein the ridge feature extends outwardly from the anterior surface to enable engagement with a lower eyelid of a user and thereby provide vertical translation support for the contact lens when being worn by the user.
8. A contact lens of claim 3, wherein the peripheral zone comprises a ramped ridge zone disposed below the optical zone, wherein the ramped ridge zone includes an upper edge, a lower ramped edge, a latitudinal ridge that extends outwardly from the anterior surface, and a ramp that is a blending zone ensuring a smooth transition between the lower ramped edge and surrounding surface of the peripheral zone.
9. A contact lens of claim 8, wherein the lower ramped edge and the latitudinal ridge are flattened in shape.
10. A contact lens of claim 3, wherein the entire peripheral zone has a continuity in first derivative and/or in second derivative.
11. A contact lens of claim 10, wherein peripheral zone is defined by a spline-based mathematical function, or is made of several different surface patches.
12. A contact lens of claim 3, wherein the contact lens is a toric, multifocal, or a toric multifocal contact lens.
13. A contact lens of claim 1, wherein the thickness profile is characterized by having a mirror symmetry with respect to a plane cutting through the vertical meridian, by having a substantially constant thickness in a region around the horizontal meridian and by having a thickness which decreases progressively from the horizontal meridian to the top or bottom of the contact lens along each of the vertical meridian and lines parallel to the vertical meridian.
14. A contact lens of claim 13, wherein the anterior surface has a series of isolines running from one side to the other side of the lens, wherein the lens thickness in the peripheral zone remains substantially constant along each of the series of isolines.

15. A contact lens of claim 14, wherein one of the isolines is a straight line coincidental with the horizontal meridian and the rest isolines are arcs, wherein each of arcs above the horizontal meridian is different from each other and mimics one arc of the edge of the upper eyelid of an eye at an eye-opening position, whereas each of arcs below the horizontal meridian is different from each other and mimics one arc of the edge of the lower eyelid of the eye at an eye-opening position.
16. A contact lens of claim 13, wherein the thickness of the lens in the peripheral zone decreases significantly when approaching the top or bottom of the lens.
17. A contact lens of claim 1, wherein the edge zone is circular and, in combination with the posterior surface, provides a substantially uniform thickness around the edge of the contact lens.
18. A contact lens of claim 1, wherein the anterior surface is continuous in first derivative and/or in second derivative from center to edge.
19. A method of producing a contact lens, comprising the steps of shaping the contact lens by a manufacturing means to have an anterior surface having a vertical meridian, a horizontal meridian, a central optical zone, a blending zone extending outwardly from the central optical zone, a peripheral zone surrounding the blending zone, and an edge zone circumscribing and tangent to the peripheral zone; and an opposite posterior surface, wherein the blending zone has a surface which ensures that the peripheral zone, the blending zone and the central optical zone are tangent to each other, and wherein the peripheral zone has a surface that, in combination with the posterior surface, provides in the peripheral zone of the lens a thickness profile which is characterized (1) by having a lens thickness which increases progressively from the top of the lens downwardly along each of the vertical meridian and lines parallel to the vertical meridian until reaching a maximum value at a position between the optical zone and the edge zone and then decreases to the edge of the edge zone; or (2) by having a mirror symmetry with respect to a plane cutting through the vertical meridian, by having a substantially constant thickness in a region around the horizontal meridian and by having a thickness which decreases progressively from the horizontal meridian to the top or bottom of the contact lens along each of the vertical meridian and lines parallel to the vertical meridian.
20. A method of claim 19, wherein said manufacturing means is a numerically controlled lathe or molds.
21. A method of claim 19, wherein the thickness profile is characterized by having a lens thickness which increases progressively from the top of the lens downwardly along each

of the vertical meridian and lines parallel to the vertical meridian until reaching a maximum value at a position between the optical zone and the edge zone and then decreases to the edge of the edge zone.

22. A method of claim 21, wherein the lens thickness profile has a mirror symmetry with respect to a plane cutting through the vertical meridian.
23. A method of claim 21, wherein the anterior surface has a series of isolines running from one side to the other side of the lens, wherein the lens thickness in the peripheral zone remains substantially constant along each of the series of isolines.
24. A method of claim 23, wherein one of the isolines is a straight line coincidental with the horizontal meridian and the rest isolines are arcs, wherein each of arcs above the horizontal meridian is different from each other and mimics one arc of the edge of the upper eyelid of an eye at an eye-opening position, whereas each of arcs below the horizontal meridian is different from each other and mimics one arc of the edge of the lower eyelid of the eye at an eye-opening position.
25. A method of claim 21, wherein the the peripheral zone comprises: (i) a ridge feature disposed below the central optical zone, wherein the ridge feature extends outwardly from the anterior surface to enable engagement with a lower eyelid of a user and thereby provide vertical translation support for the contact lens when being worn by the user; or (ii) a ramped ridge zone disposed below the central optical zone, wherein the ramped ridge zone includes an upper edge, a lower ramped edge, a latitudinal ridge that extends outwardly from the anterior surface, and a ramp that ensures a smooth transition between the lower ramped edge and surrounding surface of the peripheral zone.
26. A method of claim 19, wherein the thickness profile is characterized by having a mirror symmetry with respect to a plane cutting through the vertical meridian, by having a substantially constant thickness in a region around the horizontal meridian and by having a thickness which decreases progressively from the horizontal meridian to the top or bottom of the contact lens along each of the vertical meridian and lines parallel to the vertical meridian.
27. A method of claim 26, wherein the anterior surface has a series of isolines running from one side to the other side of the lens, wherein the lens thickness in the peripheral zone remains substantially constant along each of the series of isolines.
28. A method of claim 27, wherein one of the isolines is a straight line coincidental with the horizontal meridian and the rest isolines are arcs, wherein each of arcs above the horizontal meridian is different from each other and mimics one arc of the edge of the

upper eyelid of an eye at an eye-opening position, whereas each of arcs below the horizontal meridian is different from each other and mimics one arc of the edge of the lower eyelid of the eye at an eye-opening position.

29. A method of claim 26, wherein the thickness of the lens in the peripheral zone decreases significantly when approaching the top or bottom of the lens.
30. A method of claim 19, wherein the entire peripheral zone has a continuity in first derivative and/or in second derivative and is defined by a spline-based mathematical function or made of several different surface patches.
31. A method of claim 19, wherein the blending zone is defined by a spline-based mathematical function or is made of several different surface patches.
32. A method of claim 19, wherein the contact lens is a bifocal contact lens, a multifocal contact lens, a toric contact lens, a toric bifocal contact lens, or a toric multifocal contact lens.
33. A method of claim 19, wherein the edge zone is circular and, in combination with the posterior surface, provides a substantially uniform thickness around the edge of the contact lens.
34. A method of claim 33, wherein the anterior surface is continuous in first derivative and/or in second derivative from center to edge.
35. A series of contact lenses having a series of different cylindrical power corrections and/or different multifocal powers, wherein each contact lens in the series comprises: an anterior surface having a vertical meridian, a horizontal meridian, a central optical zone, a blending zone extending outwardly from the central optical zone, a peripheral zone surrounding the blending zone, and an edge zone circumscribing and tangent to the peripheral zone; and an opposite posterior surface, wherein the peripheral zone, the blending zone and the central optical zone are tangent to each other, and wherein the peripheral zone has a surface that, in combination with the posterior surface, provides in the peripheral zone of the lens a thickness profile which is characterized (1) by having a lens thickness which increases progressively from the top of the lens downwardly along each of the vertical meridian and lines parallel to the vertical meridian until reaching a maximum value at a position between the optical zone and the edge zone and then decreases to the edge of the edge zone; or (2) by having a mirror symmetry with respect to a plane cutting through the vertical meridian, by having a substantially constant thickness in a region around the horizontal meridian and by having a thickness which

decreases progressively from the horizontal meridian to the top or bottom of the contact lens along each of the vertical meridian and lines parallel to the vertical meridian.

36. A series of contact lenses of claim 35, wherein the thickness profile is characterized by having a lens thickness which increases progressively from the top of the lens downwardly along each of the vertical meridian and lines parallel to the vertical meridian until reaching a maximum value at a position between the optical zone and the edge zone and then decreases to the edge of the edge zone.
37. A series of contact lenses of claim 36, wherein the lens thickness profile has a mirror symmetry with respect to a plane cutting through the vertical meridian.
38. A series of contact lenses of claim 36, wherein the anterior surface has a series of isolines running from one side to the other side of the lens, wherein the lens thickness in the peripheral zone remains substantially constant along each of the series of isolines.
39. A series of contact lenses of claim 38, wherein one of the isolines is a straight line coincidental with the horizontal meridian and the rest isolines are arcs, wherein each of arcs above the horizontal meridian is different from each other and mimics one arc of the edge of the upper eyelid of an eye at an eye-opening position, whereas each of arcs below the horizontal meridian is different from each other and mimics one arc of the edge of the lower eyelid of the eye at an eye-opening position.
40. A series of contact lenses of claim 36, wherein the peripheral zone comprises: (i) a ridge feature disposed below the central optical zone, wherein the ridge feature extends outwardly from the anterior surface to enable engagement with a lower eyelid of a user and thereby provide vertical translation support for the contact lens when being worn by the user; or (ii) a ramped ridge zone disposed below the central optical zone, wherein the ramped ridge zone includes an upper edge, a lower ramped edge, a latitudinal ridge that extends outwardly from the anterior surface, and a ramp that ensures a smooth transition between the lower ramped edge and surrounding surface of the peripheral zone.
41. A series of contact lenses of claim 35, wherein the thickness profile is characterized by having a mirror symmetry with respect to a plane cutting through the vertical meridian, by having a substantially constant thickness in a region around the horizontal meridian and by having a thickness which decreases progressively from the horizontal meridian to the top or bottom of the contact lens along each of the vertical meridian and lines parallel to the vertical meridian.

42. A series of contact lenses of claim 41, wherein the anterior surface has a series of isolines running from one side to the other side of the lens, wherein the lens thickness in the peripheral zone remains substantially constant along each of the series of isolines.
43. A series of contact lenses of claim 42, wherein one of the isolines is a straight line coincidental with the horizontal meridian and the rest isolines are arcs, wherein each of arcs above the horizontal meridian is different from each other and mimics one arc of the edge of the upper eyelid of an eye at an eye-opening position, whereas each of arcs below the horizontal meridian is different from each other and mimics one arc of the edge of the lower eyelid of the eye at an eye-opening position.
44. A series of contact lenses of claim 41, wherein the thickness of the lens in the peripheral zone decreases significantly when approaching the top or bottom of the lens.
45. A series of contact lenses of claim 35, wherein the entire peripheral zone has a continuity in first derivative and/or in second derivative and is defined by a spline-based mathematical function or made of several different surface patches.
46. A series of contact lenses of claim 35, wherein the blending zone is defined by a spline-based mathematical function or is made of several different surface patches.
47. A series of contact lenses of claim 35, wherein the edge zone is circular and, in combination with the posterior surface, provides a substantially uniform thickness around the edge of the contact lens.
48. A series of contact lenses of claim 29, wherein the anterior surface is continuous in first derivative and/or in second derivative from center to edge.